REMARKS

Claims 1-14, 17, 18, 28, 29, 33-35, and 37-49 are pending. Claims 1-14, 17, 18,

28, 29, 33-35, and 37-50 were rejected. Claims 1, 48, and 49 have been amended.

Claim 50 has been canceled, without prejudice. Reconsideration and allowance are

respectfully requested.

Claim Rejections – 35 USC § 103

Claims 1-13, 17, 28-29, 33-35, 37-38, 40-42, and 48-50 were rejected under 35

U.S.C. 103(a) as being unpatentable over Cloonan (U.S. Patent 5,537,403) in view of

Siemens (UMTS: Opening Up a World of Opportunities) and Odfelt (U.S. Patent

7,315,900 B1). Independent claims 1, 48 and 49 have been amended.[1] Claim 50 has

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[1] These claims now recite *"configured to establish logical links through the node and across a plurality of nodes and configured to cause set up of a logical link by issuing a request to establish a logical link routed from a source to a destination node"*. This amendment is supported by claim 1 as originally filed: "... a communications node for establishing a plurality of logically distinct communications links running through the node contemporaneously to one or more remote nodes", and by page 29, line 3 of the application as published in the International Phase "Setting up a logical link is a distributed process which occurs in two passes, an outbound pass and an inbound pass. On the outbound pass, a request to establish a logical link is routed from a source node to a destination node over a plurality of preferred nodes."

These claims also now recite *"and to cause the setting of appropriate switching tables of nodes having the required resources but not of nodes denying the request."* This amendment is supported by page 29, line 8 of the application as published in the International Phase "If the node does have the required resources available, it sets up the logical link and appropriate switching tables," and page 29, line 13 of the application as published in the International Phase "If at any each node, insufficient resources are available, the node returns a request denied message to the node from which the request arrived. Protocol handlers at that node may then try alternative routes via other preferred nodes connected to this node. In this way, the entire tree of possible routes can be tested for paths with suitable resources."

These claims also now recite *"or packet-switched services at each node, into one of the plurality of packet processing pipelines."* This amendment is supported by page 11, line

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been canceled. As amended and canceled, this rejection is respectfully traversed and reconsideration is requested.

The node of the invention is configured to establish logical links across a network of nodes, wherein at each node each logical link is selectively switchable into circuit switched services or into packet switched services. This arrangement is described in detail on page 29 of the application as published in the International Phase, as recited above.

Independent claims 1, 48 and 49 have been amended to clearly recite "control means associated with said input switch means and said output switch means configured to establish logical links through the node and across a plurality of nodes, and configured to cause set up of a logical link by issuing a request to establish a logical link routed from a source to a destination node and to cause the setting of appropriate switching tables of nodes having the required resources but not of nodes denying the request, each said logical link comprising one or more channels of a physical link and wherein each said logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines."

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3 of the application as published in the International Phase "At each node any of the logical links can independently be circuit-switched by the SATSI stages, or demultiplexed via packet buffering and switched into one of the packet processing pipelines that is appropriate to the traffic type" and also by page 13, line 25 of the application as published in the International Phase "Packetised data streams can be carried along any combination of circuit-switched logical links and packet-switched logical links, and where each packet switched logical link ends the data is switched into a packet processing pipeline of the appropriate type."

Cloonan, Odfelt or Siemens fail to disclose features of amended independent claims 1, 48 and 49. For example, none of them disclose *"control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines."*

The node of the invention is advantageous over these other systems. For example, the use of logical links which are "selectively switchable into circuit-switched services or packet-switched services at each node" enables the node of the invention to eliminate the need for a full protocol stack in certain circumstances. For example, a network can be established to send IP, with or without it being carried, for example, over Ethernet. This enables the node to utilise bandwidth more efficiently than those of the applied references. It also enables a plurality of nodes to form a physical network that can simultaneously support multiple virtual networks each of which can use a different protocol stack, even using different link layers.

Consequently, amended independent claim 1 and its dependent claims, and amended independent claims 48 and 49 are novel over the applied references. The amended claims also are unobvious in view of these references.

As stated above, Cloonan, Odfelt and Siemens all fail to disclose features of amended independent claims 1, 48 and 49. As indicated above, for example, none of them disclose *"control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the*

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plurality of packet processing pipelines." Nor does any combination of them result in such a feature.

Cloonan does not disclose "control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switch-able into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines," whether "nodes" is interpreted as Cloonan's crossbar switches or as Cloonan's entire switch fabric. The objects of Cloonan are "to provide a switch fabric for a high performance switch having a large throughput" (Cloonan page 3, line 24) and "to provide a switch fabric having a large throughput with reduced complexity, yet low ATM cell loss probability due to internal blocking" (Cloonan page 3, line 26). The objects of Cloonan are very different from the objects of the present invention. Page 5, line 6 of the present application recites "Accordingly, known multiservice architectures bring existing architectural constraints of voice, video and data networks. There has been a corresponding failure to harness the strengths of independent network types in the multiservice alternatives disclosed to date." And in this context, page 5, line 11 of the present application recites "The present invention seeks to provide an improved communications node and methods of operation thereof." The node of the invention is a multiservice switching node that can be to be used to form networks that provide a new degree of multiservice switching flexibility, offering a variety of packet switched services according to different protocol stacks, including different link layers, as well as circuit switched services.

It would therefore not have been obvious to a person skilled in the art to create a multiservice switching node like that of the invention, one able to support and configure physical networks that are capable of simultaneously supporting multiple virtual networks that can use any combination of circuit switched services and packet switched services, enabling different virtual networks to use different protocol stacks, and enabling the elimination of, for example, the link layer.

It would therefore not have been obvious to a person skilled in the art reading Cloonan alone or in combination with Siemens and Odfelt to consider "*control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switch-able into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines.*"

Odfelt does not disclose "control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines". Odfelt's invention is "directed to techniques for supporting multi-link protocols within a computer network," (Odfelt, Abstract), "in which a sequence of data can be transferred between two devices via more than one link" (Odfelt, page 1, line 48), where the link is a physical link, such as "a copper wire, a coaxial cable, or any of a host of different fiber optic lines" (Odfelt, page 1, line 34).

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The objects of Odfelt are also very different from the objects of the present invention, which are recited above. It would therefore not have been obvious to a person skilled in the art reading Odfelt alone or in combination with Cloonan and Siemens to consider "*control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switch-able into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines.*"

Siemens discloses a number of switch architectures that enable mobile networks with a second generation ("2G") circuit switched architecture to be smoothly upgraded to a third generation ("3G") packet switched architecture. They incorporate multiple switching services and are therefore a kind of prior art multiservice switch. Prior art multiservice switches are used to <u>interconnect</u> networks that use different switching services, to connect packet switched networks with circuit switched networks, and/or to connect packet switched networks that use different link layers. It would not have been obvious to use these switches to form networks because they are used to interconnect networks not form networks of their own. Known multiservice networks are not networks of multiservice switches. A multiservice network is simply a network providing services previously provided by multiple networks. Page 5, line 6 of the present application recites "Accordingly, known multiservice architectures bring existing architectural constraints of voice, video and data networks. There has been a corresponding failure to harness the strengths of independent network types in the multiservice alternatives disclosed to date." And in this context, page 5, line 11 of the present application recites

"The present invention seeks to provide an improved communications node and methods of operation thereof." The node of the invention is a multiservice switching node that can be used to form networks that provide a new degree of multiservice switching flexibility, offering a variety of packet switched services according to different protocol stacks, including different link layers, as well as circuit switched services.

In Siemens logical links are not be selectively switchable into circuit-switched services or packet-switched services at each node. Siemens and other prior art multiservice switches do not feature control means to establish logical links across the network that can be circuit switched at some nodes and packet switched at others. Siemens does not disclose *"control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines."* Nor is it an object of Siemen's to create a multiservice switching node capable of forming multiservice networks of the kind already described in any of the independent claims. It would not have been obvious to a person skilled in the art reading Siemens alone or in combination with Cloonan and Odfelt to consider this feature.

In summary, it would not have been obvious to a person skilled in the art to combine the teachings of any of the cited documents. In addition, even if the teachings of the cited documents were combined, the subject matter of the claims would not result since none of these references art discloses *"control means ... configured to establish logical links through the node and across a plurality of nodes ... wherein each said*

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logical link is selectively switchable into circuit-switched services or packet-switched services at each node, into one of the plurality of packet processing pipelines."

Consequently, amended independent claim 1 and its dependent claims, and amended independent claims 48 and 49 are not obvious in view of the applied references.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance and early notice of the same is earnestly requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 501946 and please credit any excess fees to such deposit account.

Respectfully submitted,

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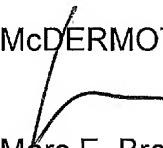
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